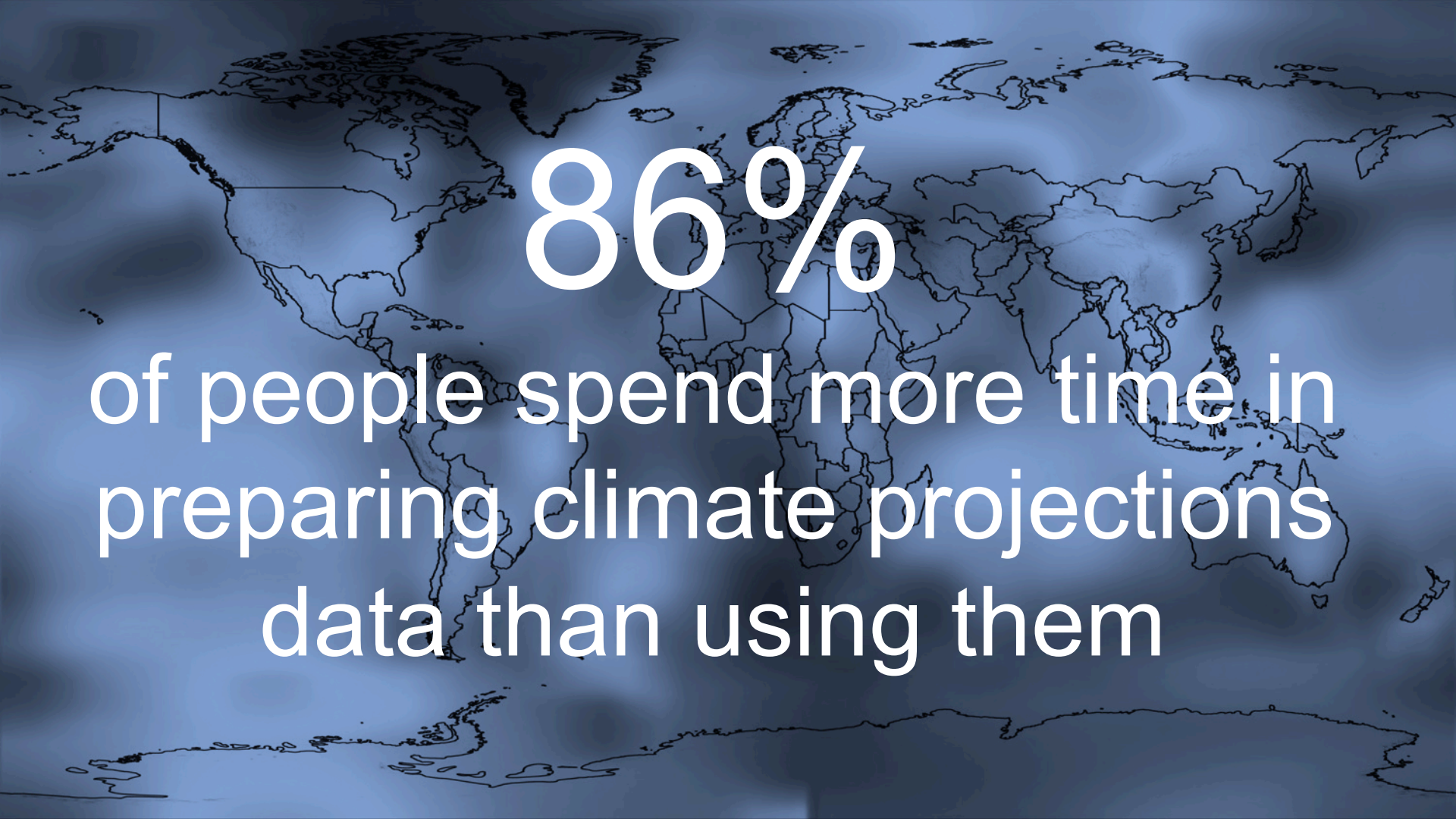
the climate data factory

Journée LabEx-IPSL

Paris – 10 Octobre 2017

Harilaos Loukos, Florian Cochard, Thomas Noël

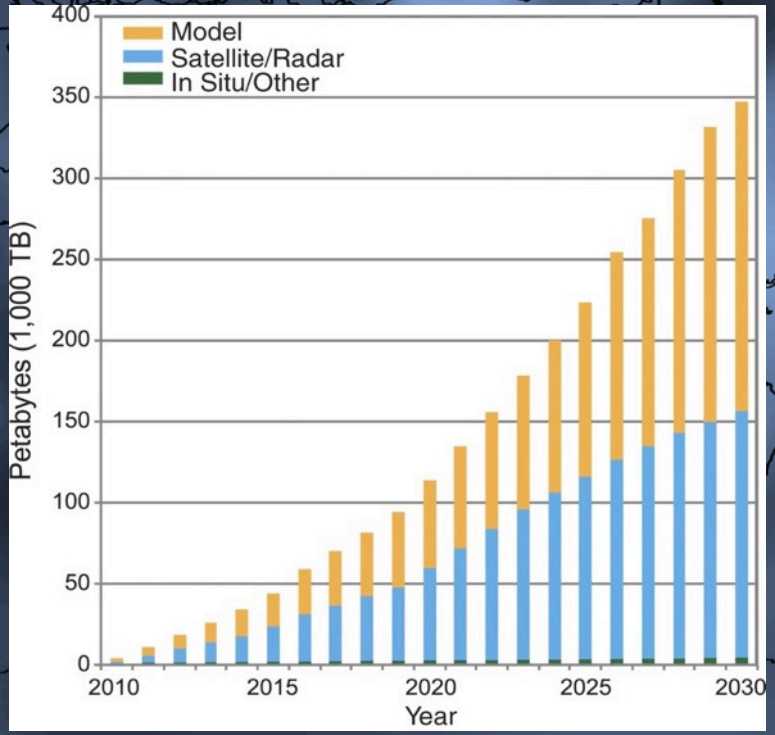
Dealing with climate model data is a struggle


86%
of people spend more time in preparing climate projections data than using them

too much model data …

«The volume of worldwide model climate data is expanding rapidly, creating challenges for both physical archiving and sharing, ..»

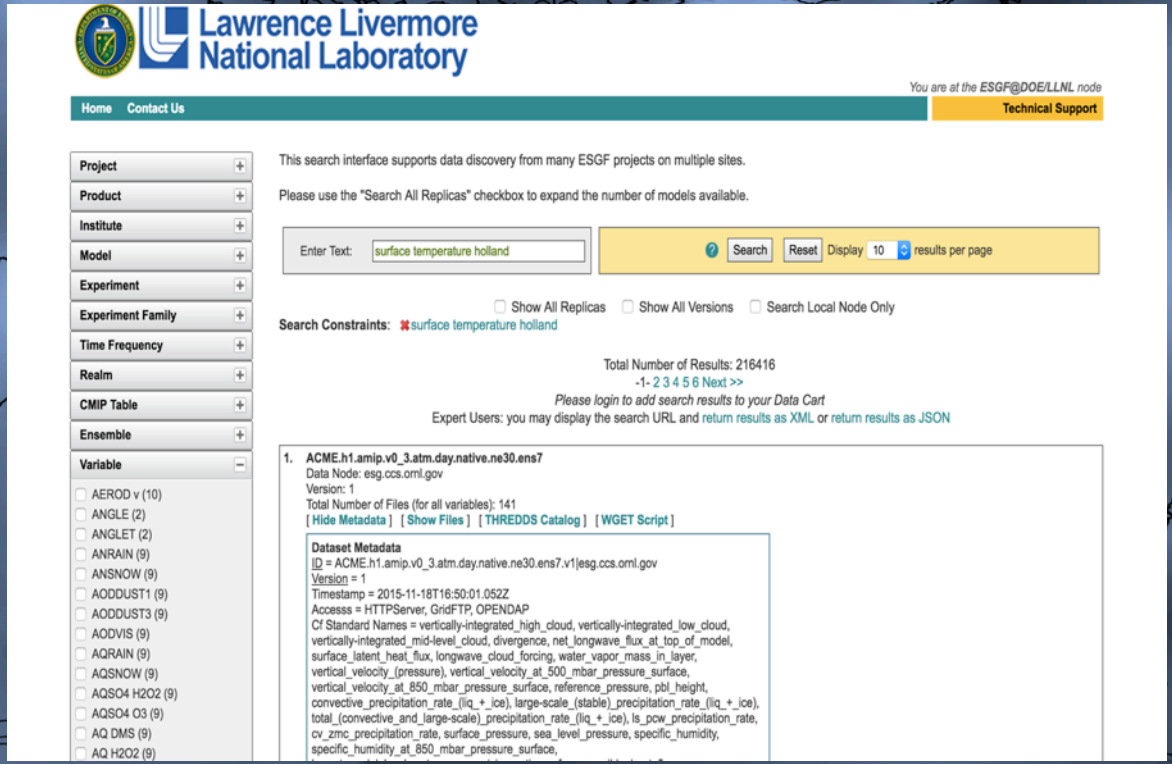
Climate Data Challenges in the 21st Century, J. T. Overpeck *et al.* 2011, *Science*



difficult to find and access …

«… as well as for ease of access and finding what's needed, particularly if you are not a climate scientist»

Climate Data Challenges in the 21st Century, J. T. Overpeck *et al.* 2011, *Science*



on different model grids ...

that need bias adjustment...

The Cryosphere Discuss., 9, 3821–3857, 2015
www.the-cryosphere-discuss.net/9/3821/2015/
doi:10.5194/tcd-9-3821-2015
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The Cryosphere Discussions
Open Access

This discussion paper is/has been under review for the journal The Cryosphere (TC).
Please refer to the corresponding final paper in TC if available.

Improved Arctic sea ice thickness projections using bias corrected CMIP5 simulations

N. Melia[1], K. Haines[2], and E. Hawkins[3]

Contents lists available at SciVerse ScienceDirect

Journal of Hydrology

journal homepage: www.elsevier.com/locate/jhydrol

Bias correction of regional climate model simulations for hydrological climate-change impact studies: Review and evaluation of different methods

Claudia Teutschbein [a,*], Jan Seibert [a,b,c]

Earth Syst. Dynam. Discuss., 6, 1999–2042, 2015
www.earth-syst-dynam-discuss.net/6/1999/2015/
doi:10.5194/esdd-6-1999-2015
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Earth System Dynamics Discussions
Open Access

This discussion paper is/has been under review for the journal Earth System Dynamics (ESD). Please refer to the corresponding final paper in ESD if available.

A novel bias correction methodology for climate impact simulations

S. Sippel[1,2], F. E. L. Otto[3], M. Forkel[1], M. R. Allen[3], B. P. Guillod[3], M. Heimann[1], M. Reichstein[1], S. I. Seneviratne[2], K. Thonicke[4], and M. D. Mahecha[1,5]

JOURNAL OF GEOPHYSICAL RESEARCH, VOL. 117, D23114, doi:10.1029/2012JD018192, 2012

Intercomparison of bias-correction methods for monthly temperature and precipitation simulated by multiple climate models

Satoshi Watanabe,[1] Shinjiro Kanae,[2] Shinta Seto,[3] Pat J.-F. Yeh,[4] Yukiko Hirabayashi,[1] and Taikan Oki[3]

and evaluation/quality control/sampling

Selection of Climate Models for Developing Representative Climate Projections for the Hindu Kush Himalayan Region

Consortium members

ICIMOD teri WAGENINGEN UR

RESEARCH ARTICLE

10.1002/2015JD023656

Key Points:

- Evaluation of precipitation and temperature simulation in global climate models in central Africa
- Climate models exhibit limited skills in precipitation simulations
- Climate model selection for regional impact studies is evaluated

Evaluation of historical and future simulations of precipitation and temperature in central Africa from CMIP5 climate models

Noel R. Aloysius[1,2], Justin Sheffield[3], James E. Saiers[1], Haibin Li[4], and Eric F. Wood[3]

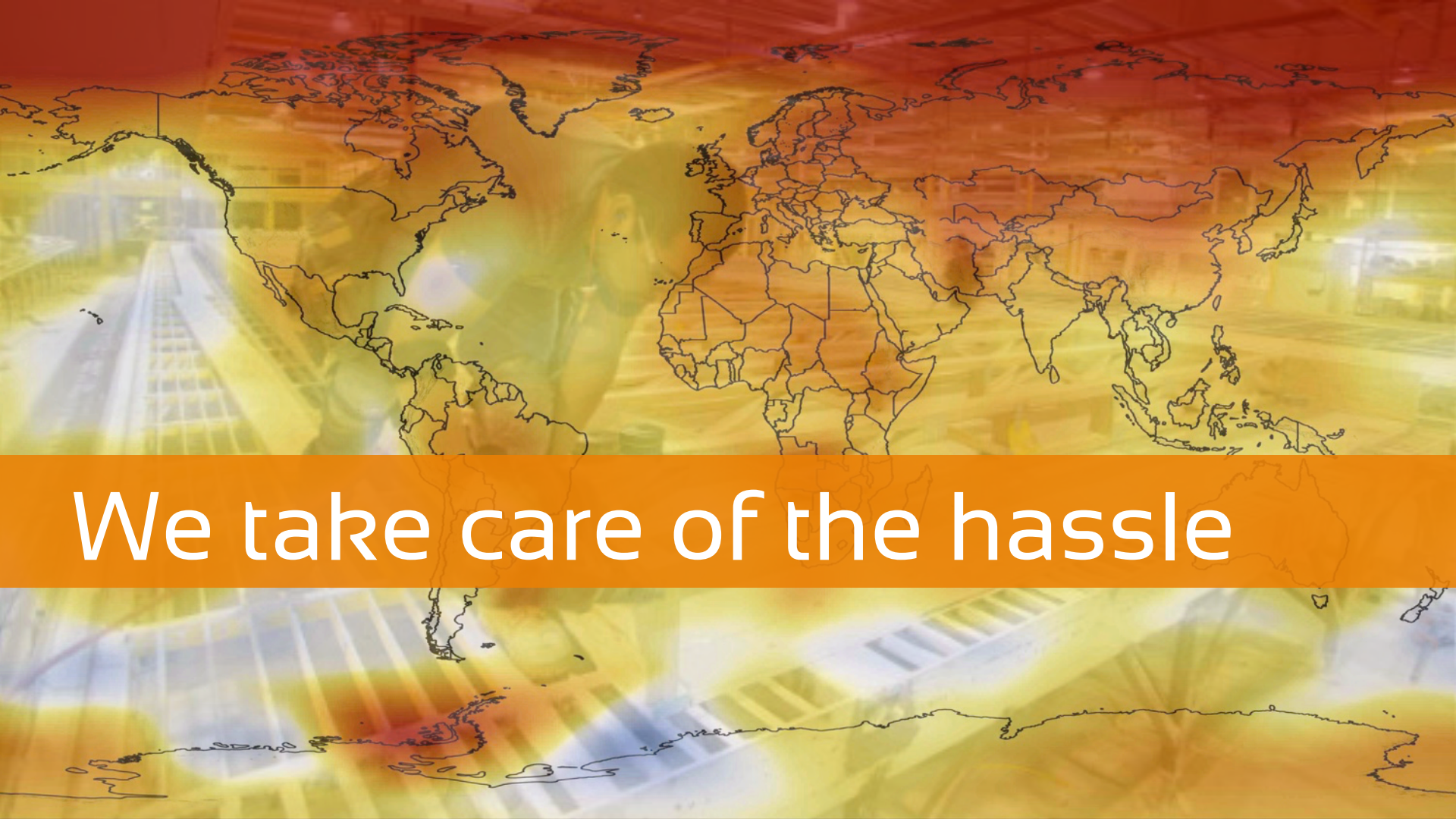
[1]School of Forestry and Environmental Studies, Yale University, New Haven, Connecticut, USA, [2]Now at Department of Food, Agricultural, and Biological Engineering and Department of Evolution, Ecology, and Organismal Biology, Ohio State University, Columbus, Ohio, USA, [3]Department of Civil and Environmental Engineering, Princeton University, Princeton, New Jersey, USA, [4]Department of Earth and Planetary Sciences, Rutgers University, Piscataway, New Jersey, USA

INTERNATIONAL JOURNAL OF CLIMATOLOGY
Int. J. Climatol. (2016)
Published online in Wiley Online Library
(wileyonlinelibrary.com) DOI: 10.1002/joc.4608

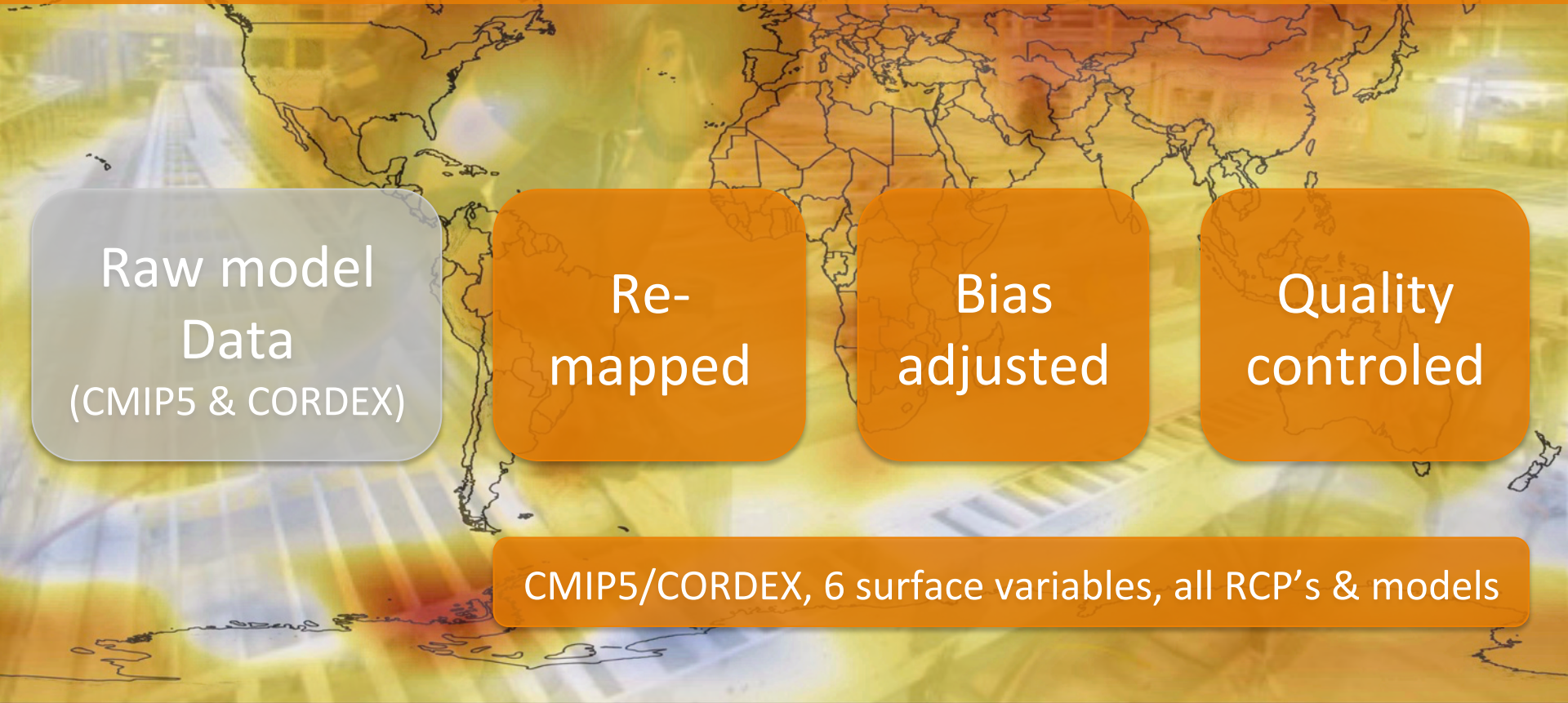
RMetS
Royal Meteorological Society

Selecting representative climate models for climate change impact studies: an advanced envelope-based selection approach

Arthur F. Lutz,[a,b]* Herbert W. ter Maat,[c] Hester Biemans,[c] Arun B. Shrestha,[d] Philippus Wester[d] and Walter W. Immerzeel[a,b]


We take care of the hassle

ready to use climate model data



Raw model Data
(CMIP5 & CORDEX)

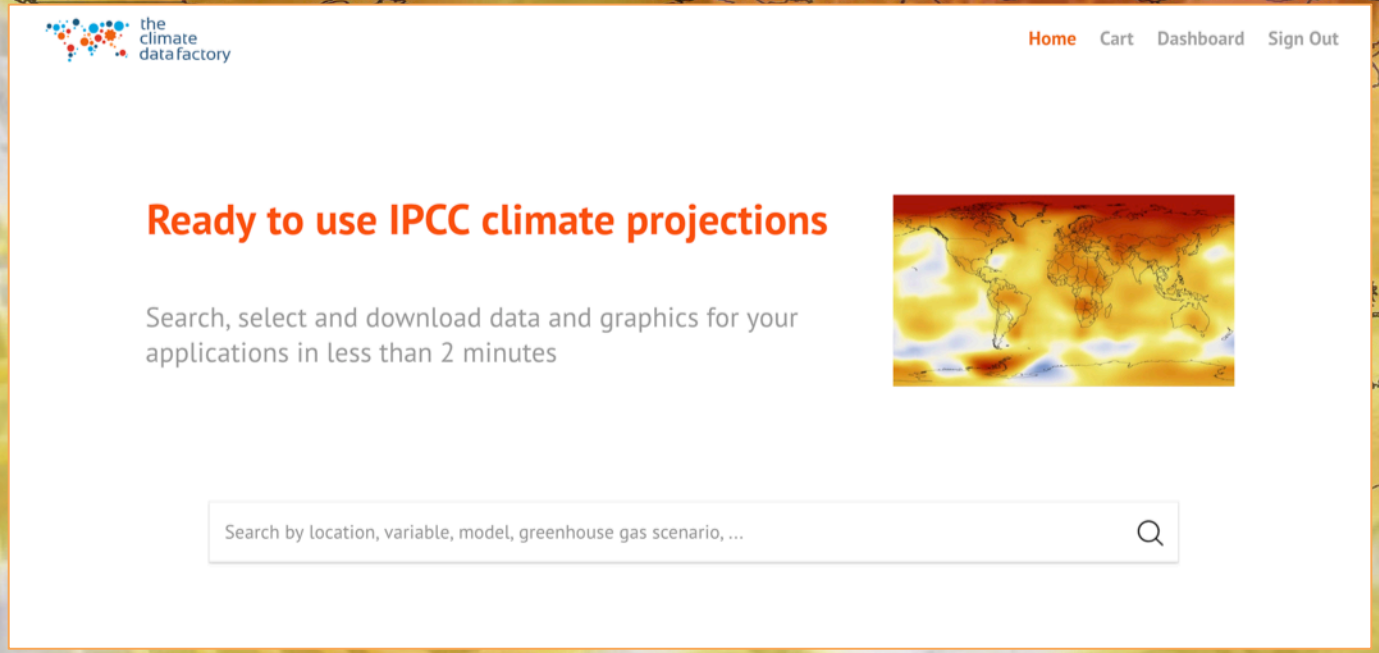
Re-mapped

Bias adjusted

Quality controled

CMIP5/CORDEX, 6 surface variables, all RCP's & models

make it as simple as possible



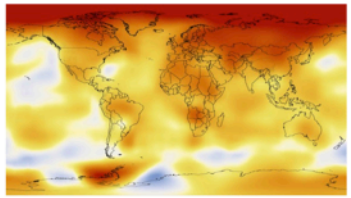
user friendly search (beta)

the climate data factory

Home Login Sign Up Cart

Ready to use IPCC climate projections

Search, select and download data and graphics for your applications in less than 2 minutes

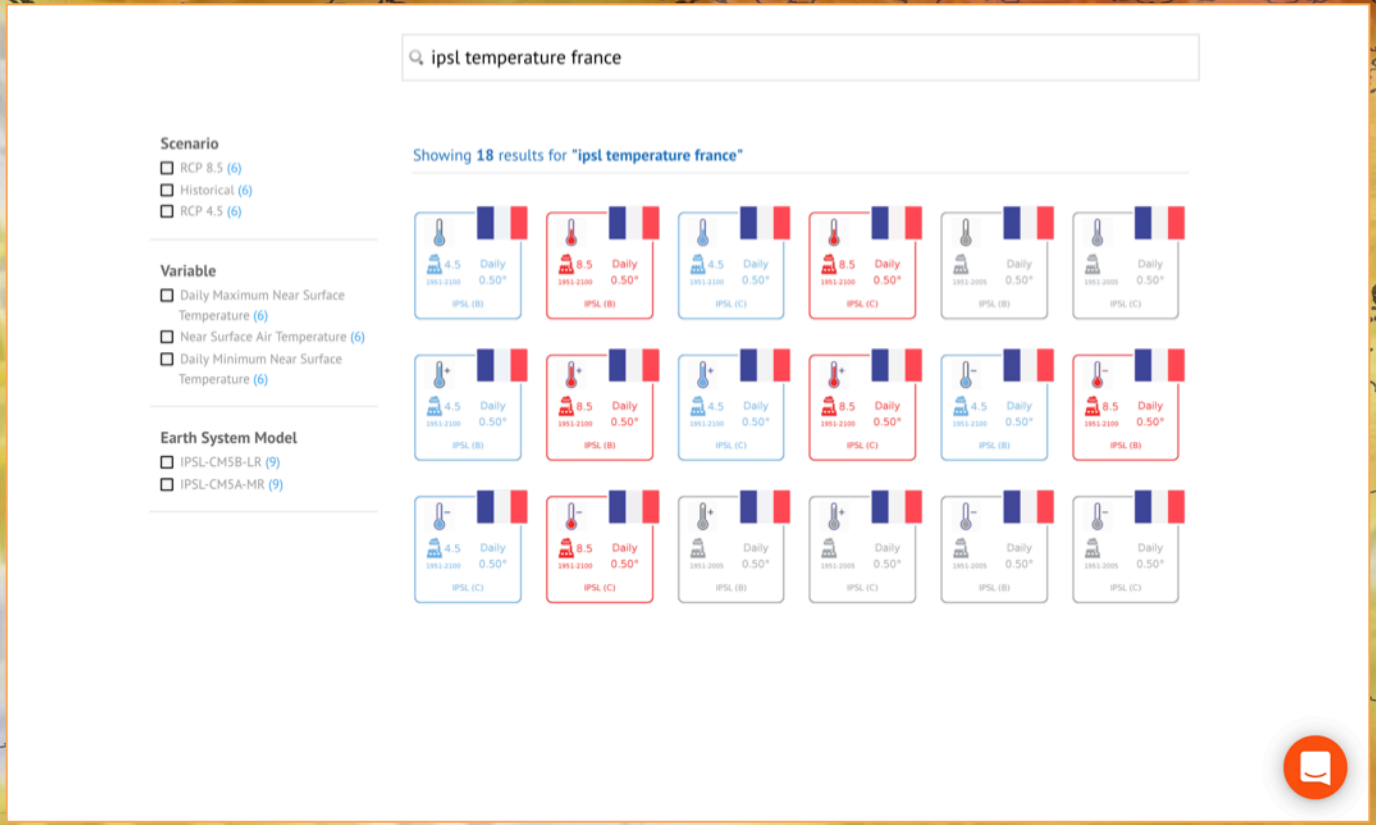


ipsl temperature france

Products

- Near-Surface Air Temperature over France (Europe) - Data from IPSL's IPSL-CM5A-MR CMIP5 model under RCP 4.5 (Daily, 0.50°)
- Near-Surface Air Temperature over France (Europe) - Data from IPSL's IPSL-CM5A-MR CMIP5 model under RCP 8.5 (Daily, 0.50°)
- Near-Surface Air Temperature over France (Europe) - Data from IPSL's IPSL-CM5B-LR CMIP5 model under RCP 4.5 (Daily, 0.50°)
- Near-Surface Air Temperature over France (Europe) - Data from IPSL's IPSL-CM5B-LR CMIP5 model under RCP 8.5 (Daily, 0.50°)

user friendly search (beta)



simple & extensive product info

Near-Surface Air Temperature over France (Europe) – Data from IPSL's IPSL-CM5A-MR CMIP5 model under RCP 8.5 (Daily, 0.50°)

A data file (NetCDF)

Reference: DAT-C5A-FRA-998d851ed829b005

Description | **Additional information**

Additional information

Product Type	*Data*
Experiment	*CMIP5 (IPCC)*
Scenario	*RCP 8.5*
Region	*Europe*
Country	*France*
Variable	*Near Surface Air Temperature*
Postprocessing	*Remapped & Adjusted*
Remapping method	*Bicubic interpolation, wfdei*
Adjustment Method	*CDF Transform method, WATCH-FDEI Gridded Observations*
Spatial resolution	*0.50° x 0.50° Degrees*
Time resolution	*Daily*

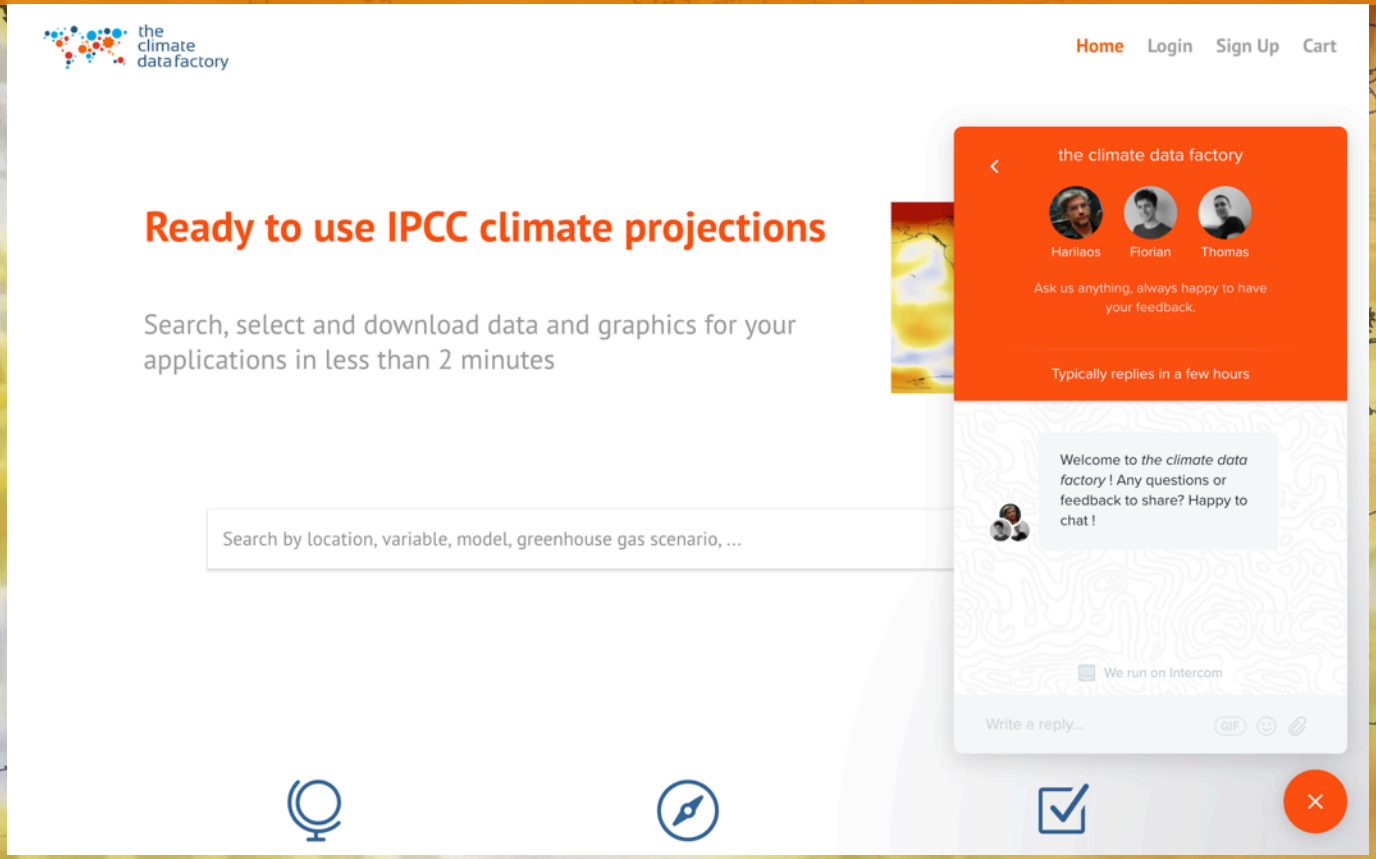
for a broader audience

Impact researchers

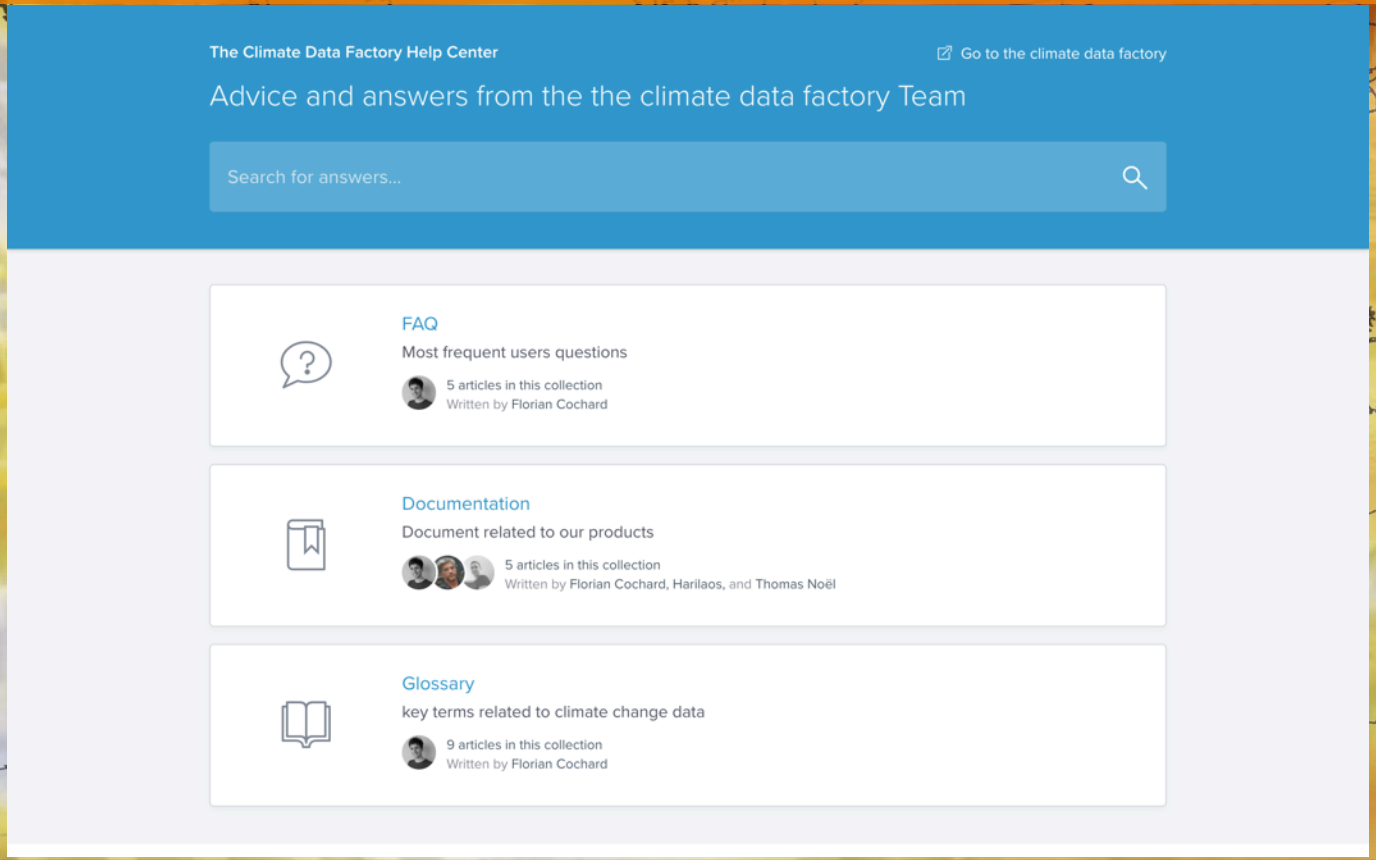
Adaptation practitioners

Consulting engineering

chat user support



help center


The Climate Data Factory Help Center
Go to the climate data factory
Advice and answers from the the climate data factory Team
Search for answers...
FAQ
Most frequent users questions
5 articles in this collection
Written by Florian Cochard
Documentation
Document related to our products
5 articles in this collection
Written by Florian Cochard, Harilaos, and Thomas Noël
Glossary
key terms related to climate change data
9 articles in this collection
Written by Florian Cochard

Harilaos Loukos

Founder

Harilaos is an entrepreneur with scientific and business expertise in the field of weather and climate services. Before tcdf Harilaos founded a weather service company that was acquired by the world's largest private weather service provider. His background is in oceanography with a PhD from Pierre et Marie Curie University at Institut Pierre Simon Laplace and a postdoc at UW and NOAA/PMEL.

Thomas Noël

Data Engineer

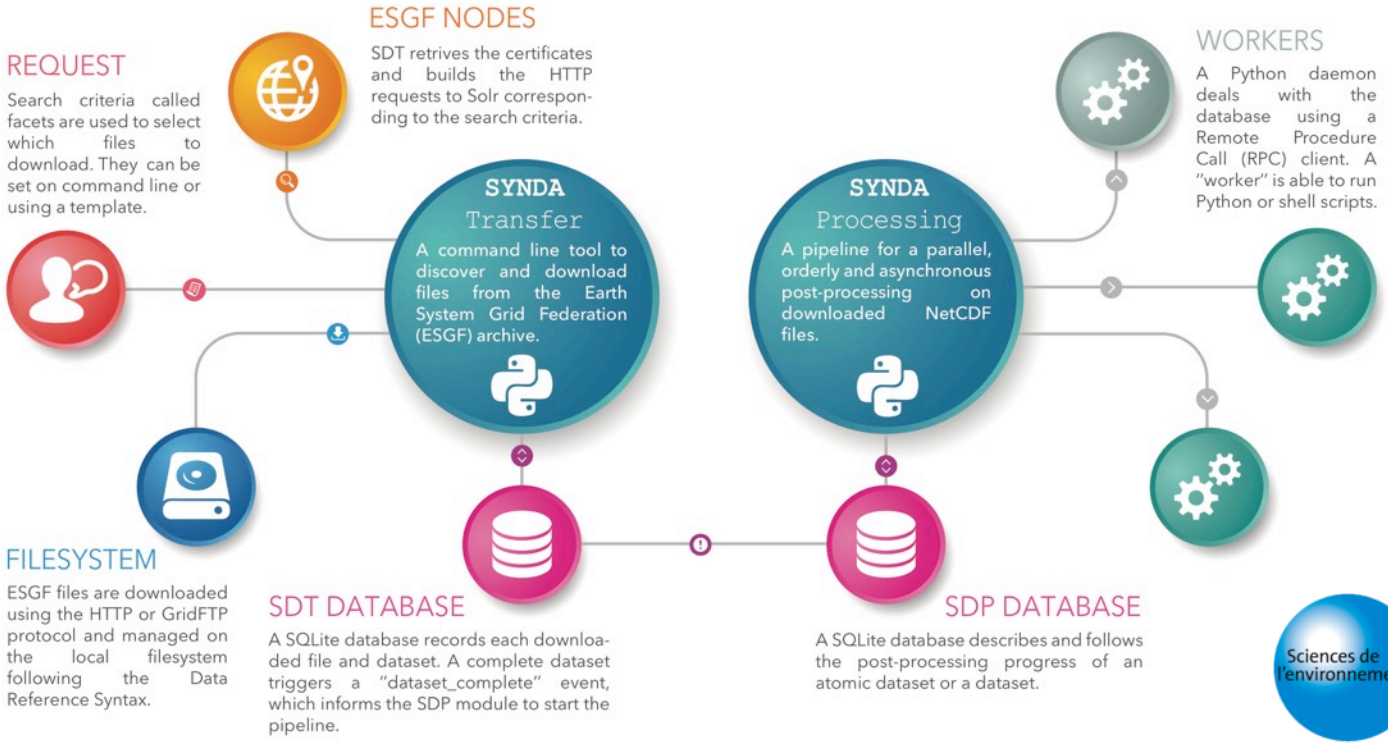
Thomas is an expert in climate model data management and post-processing. Before joining tcdf Thomas was a research engineer at Institut Pierre Simon Laplace developing algorithms for post processing and bias adjustment of climate model simulations. Thomas holds a PhD in Earth Sciences and Atmosphere from the University of Versailles Saint Quentin en Yvelines.

Florian Cochard

Product Developer

Florian is an entrepreneurial swiss army knife. Before joining tcdf Florian contributed to a weather insurance solution for smallholders farmers in sub saharan Africa. Florian has a background in climate physics from Pierre & Marie Curie University, a master thesis in hydro-meteorology from Columbia University and graduated in entrepreneurship from Ecole Polytechnique.

technology



Bias adjustment
Vrac et al 2016

Quality Control
CMOR (CF&DRS)
Tech QA (DKRZ)
Phy QA (IPSL/TCDF)

Sciences de l'environnement
Institut Pierre Simon Laplace

Ou en sommes nous après 18mois

- **Développements SYNDA Processing finis**
- **1er Jeu de donnes ajustées CMIP5/CORDEX**
- **Site TCDF opérationnel (beta)**
- **Listes emails de contacts terminées**

Difficultés

Formalisme Juridique
AO, licences, accord cadre

Développement Informatique
18 mois au lieu de 12

Financement
Faibles ressources

Satisfaction

Appui Institutionnel

Equipe LabEx

Direction

R. Vautard

N. Papineau

H. Le Treut

Collaboration Technique

Equipe Prodiguer

Synda Processing

S. Denvil

G. Levavasseur

Collaboration Scientifique

Ajustement des projections climatiques

M. Vrac

R. Vautard

Suite

Lancement du marketing

E-mailing progressif, communauté impact puis consulting

Collaboration Technique: Synda processing

Maintenance/évolution, SYNDA sur AWS, Nouvelles données

Collaboration Scientifique: Ajustement de biais

- Projections climatiques: évolution méthode CDFT (M. Vrac, R. Vautard)
- Prévision décennale: H220 CLARA + collaboration J. Mignot/E. Guilyardi
- Prévision saisonnières: ?
- Prévisions sub-saisonnières 2018/20: H2020 S2S4

merci